

PROTECTION CIRCUIT LOCATED UNDER FUSE WINDOW

ABSTRACT

[0029] A semiconductor device having a fuse window above a substrate, the semiconductor device has at least one fuse protection circuit located under the fuse window. The fuse protection circuit includes a fuse having a first end connected to a first voltage and a second end. A first transistor having a drain is connected to the second end of the fuse, a gate for receiving an input signal, and a source is connected to a second voltage. A second transistor having a drain is connected to the second end of the fuse, a gate, and a source is connected to the second voltage. A first diode having an anode and a cathode, the anode of the first diode is connected to the second voltage and the cathode of the first diode is connected to the second end of the fuse. A second diode having an anode and a cathode, the anode of the second diode is connected to the second end of the fuse and the cathode of the second diode is connected to the first voltage. A resistor having a first end is connected to the anode of the second diode, and a second end. And an inverter having an input end is connected to the second end of the resistor, and an output end is connected to the gate of the second transistor for providing an output signal.